

SOUTHEAST ALASKA SAC ROE HERRING FISHERY

1993 MANAGEMENT PLAN



Prepared by

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Regional Information Report No. 1J93-03

Alaska Department of Fish and Game
Commercial Fisheries Division
Juneau, Alaska

March 1993

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INTRODUCTION

The Southeast Alaska commercial herring fisheries occur during the winter when the product is used for bait, and during the spring when the product is harvested for its roe. The roe harvest includes the traditional sac roe fishery and a roe-on-kelp pound fishery. This management plan provides an overview of the 1993 sac roe herring fishery for Southeast Alaska including expected harvest levels and management strategy. A separate management plan for the roe-on-kelp pound fishery is available at local department offices.

The 1992 Southeast Alaska sac roe herring fishery harvested approximately 6,600 tons of herring. A harvest of approximately 10,408 tons is anticipated for the 1993 season.

Southeast Alaska roe herring are commercially harvested by purse seine and set gill net gear types, both of which are included in the limited entry system. During 1992, 115 set gillnet and 52 purse seine permits were fished. There are currently four sac roe herring fishing areas in Southeast Alaska consisting of two exclusive purse seine and two exclusive gillnet areas (Figure 1). Each of these fisheries will be discussed separately.

GENERAL MANAGEMENT OVERVIEW

Commercial herring fishing regulations are listed in the current Commercial Herring Regulations Booklet. Copies may be obtained at any Department of Fish and Game Office. Staff members listed at the conclusion of this plan are available to provide further details.

Vessel Check In And Check Out Procedure

The department requests that tenders and fishing vessels check in and out of the fishing areas with personnel located on the fishing grounds to facilitate timely assessment of herring landings. Operators who would transport fish out of Alaska prior to processing must submit a fish ticket before departing the State.

Reporting Procedures for Floating Fish Processors

Operators of floating fish processing vessels will be required to report in person, or by radio or telephone, to the local representative of the department located within the management area of intended operation before the start of processing operations. The report must include the location and date of intended operation. These requirements are specified by regulation (5AAC 39.130(f)).

Announcement of Openings and Closures

Fishery openings and closures will be made by Emergency Order. Announcements will be made on the fishing grounds over VHF radio and by contacting fishermen individually when possible. The VHF radio frequency for receiving these announcements will be indicated on the fishing grounds. Fishermen should expect short notification of opening and closing times. This is necessary to ensure fishing opportunities prior to major spawning and to maintain the harvest at desired levels.

The department will monitor the stocks in advance of the expected fishery opening dates. When spawning threshold levels have been met the fisheries will be placed on a two-hour notice prior to the first opening. During the Sitka fishery the department will try to give the industry 36-hour advance warning of a decision to place a fishery on a two-hour notice. However, if spawning is either earlier or heavier than anticipated and waiting 36 hours could result in loss of fishing opportunity, this much advance notice will not be given. During the Kah Shakes gillnet fishery the department will give the industry a 12-hour advance notice. This is a change from the traditional practice of first placing the fishery on 36-hour notice. By going to a 12-hour notice the department is attempting to limit the number of vessels on the grounds prior to the start of the fishery. The department feels that large numbers of vessels and increased activity on the spawning grounds may disrupt herring spawning activity and be detrimental to the successful hatching of a portion of the eggs.

Management Strategy

The management strategy for Southeast Alaska herring fisheries considers the availability of mature herring which have quality roe. Good quality herring is generally considered to contain approximately 10% or more mature roe. Fishing is not allowed unless a minimum threshold level of mature herring is available for spawning. The "threshold level" is the herring biomass needed to meet minimum spawning requirements. The established threshold levels for the herring sac roe fishing areas are as follows:

1.	Seymour Canal	6,000,000 lbs.	(3,000 tons)
2.	Kah Shakes	12,000,000 lbs.	(6,000 tons)
3.	Lynn Canal	10,000,000 lbs.	(5,000 tons)
4.	Sitka Sound	15,000,000 lbs.	(7,500 tons)

The management strategy also considers total stock biomass, age, growth characteristics and past spawning success. Biomass estimates are derived from hydroacoustic and spawning ground aerial and dive surveys. Age and growth information is obtained by sampling the commercial catch, test fishing, cast netting, and from trawling conducted in conjunction with hydroacoustic surveys.

The allowable harvest is based on a graduated scale that allows for higher harvest rates as a herring population increases relative to its threshold spawning level. This approach maintains annual harvest rates between 10-20% of the spawning stock in excess of established threshold spawning levels. When the spawning stock is at its minimum threshold level, a 10% harvest is allowed. The allowable harvest increases an additional 2% for every spawning stock biomass increase of an amount equal to the threshold level and reaches a maximum of 20% when the population is six times the threshold level.

The percent harvest rate for any multiple of the threshold level from one to six can be estimated from Figure 2, or by performing the following mathematical calculation:

$$\text{Percent Harvest Rate} = 8 + [(2) \times \frac{(\text{Spawning Population Size})}{\text{Threshold Level}}]$$

The spawning population size and threshold levels are expressed in millions of pounds. The spawning biomass is determined from either spawn deposition sampling conducted during the previous season or current year hydroacoustic surveys. When only spawning ground surveys can be utilized, the estimates include only mature herring that spawned the previous season. These estimates do not account for any mortality of the herring since the spawning occurred nor do they include additional recruitment since the surveys were completed. For fisheries where the population estimate is derived acoustically, only those herring that would be expected to contribute to the spawn are included. This is determined by sampling the population for size composition. Currently, spawning ground surveys are the primary population estimator used to manage the sac roe herring fisheries.

Southeast Alaska herring generally reach maturity at a standard length (tip of the snout to the end of the hypural plate) of 185 mm (8 inches), a size achieved by some 3, and most 4-year-old fish. Herring less than 185 mm are not included in the calculation of threshold harvest levels or harvest rates.

Roe Quality

One management objective is to conduct the Southeast fisheries in compliance with regulation 5AAC 27.059. MANAGEMENT GUIDELINES FOR COMMERCIAL HERRING SAC ROE FISHERIES. This regulation outlines ways the department can manage the fisheries to enhance their value. To determine the best time to fish the department samples prespawning herring populations in cooperation with fishermen and trained industry technicians. All such test fishing activities must be authorized by department biologists on the fishing grounds.

GILLNET FISHERIES

The two set gillnet sac roe fishing areas in Southeast Alaska are Kah Shakes in regulatory Section 1-F, and Seymour Canal in Section 11-D. No fishing will be permitted at Seymour Canal in 1993 because the spawning stock biomass estimate was below the area's minimum threshold level. A summary of important information for each fishery is shown in Table 1. Fishermen are reminded that regulations require identification tags, issued by the department, to be placed on one buoy at each end of a herring set gillnet.

Kah Shakes

Set gillnet sac roe fisheries have occurred in the Kah Shakes area since 1976 (Table 1). Seasonal landings have ranged from a low of 171 tons in 1978 to a high of 3,250 tons in 1983. In 1990, the minimum threshold level was not reached and no fishery was permitted.

In 1991, a major shift in the distribution of spawning herring occurred in the Kah Shakes area. Herring which had been identified in the immediate Kah Shakes area began spawning at Cat Island, approximately 12 miles west of Kah Shakes, in early April. During the Board of Fisheries meeting in October of 1991, a new regulation was passed which increased the Kah Shakes fishing area to include that portion of the Cat Island area which received spawn in 1991. The new regulation is as follows:

5 AAC 27.110. FISHING SEASONS. (b)(2)(A)) Section 1-F, only that portion south and east of a line from Point Sykes to Twin Island Light to Form Point and north of a line from Foggy Point to Form Point.

In the spring of 1992, approximately 21.3 miles of beach were recorded as having received herring spawn in the Kah Shakes/Cat Island areas. Stocks which normally spawn on Annette Island also appear to have spawned at Cat Island. Subsequent spawn deposition surveys provided an estimated spawning population of approximately 16,000,000 lbs. The harvest strategy discussed earlier provides for a harvest rate of 10.7% of the spawning stock or a harvest of 867 tons. Since there appears to have been a mixing of herring at Cat Island in 1992 the department is subtracting 150 tons of the area's harvest quota to conserve this herring resource, based on the historic level of fishing that occurs on the Annette Island Reserve. The balance of the harvest quota, 717 tons would be harvested by Southeast herring gill net sac roe permit holders.

In past years, the opening dates for the Kah Shakes fishery have ranged from March 20 (1981 and 1989) to April 8 (1991). Department personnel will begin to monitor the Kah Shakes area in mid-March. At first, the monitoring will be limited to aerial surveys. Pending observations of herring activity, department

vessels and personnel will be on the fishing grounds starting in mid to late March and remain there through the completion of the fishery.

As in past years, set gillnet buoy stickers must be obtained and placed on buoys prior to fishing. **Identification stickers will be available in the Ketchikan Fish and Game Office up until the time the department vessel is on the fishing grounds.** Once the vessel is at Kah Shakes the identification stickers will be issued only from the R/V Sundance. The stickers will be issued to valid permit holders only and proper picture identification will be required.

The legal amount of gear at Kah Shakes is one 50 fathom net with a minimum mesh size of 2 1/4 inches, and a maximum depth of 120 meshes. If, during the course of the fishery, a sticker or buoy is lost, a replacement sticker must be obtained from the department before fishing is resumed.

Regulations require a one-hour grace period for nets to be removed from the water following the announced closure time. No gillnet may be reset after the closure time. Additionally, the department has been given the authority to open the fishery for one hour or less **without a grace period**. An opening of this nature could occur if, after the initial opening, a small but manageable, amount of herring is left on the guideline harvest level. The department will announce if a grace period will not be allowed due to an opening of one hour or less.

Seymour Canal

Set gillnet fisheries have occurred intermittently in Seymour Canal (Section 11-D) since the fishery was changed from a seine area to a gillnet area in 1980. Annual landings during years fished by gillnets have ranged from 339 tons in 1986 to 615 tons in 1981.

Spawning ground egg deposition surveys conducted during May of 1992 indicated a mature herring spawning stock of 3,600,000 lbs. This is below the minimum threshold level of 6,000,000 lbs. and no commercial harvest will be permitted in 1993.

The department will continue to monitor the Seymour Canal spawning stock in 1993. Samples will be taken to determine the age class distribution throughout the spawning cycle, and aerial, skiff, and dive surveys will be conducted to estimate the size of the spawning stock. The population estimate in 1993 will be used to set the harvest level for the 1994 season.

PURSE SEINE FISHERIES

There are two purse seine herring sac roe areas in Southeast Alaska: Lynn Canal and Sitka Sound. Commercial fishing will be allowed only in Sitka Sound during the 1993 season. A summary of important information for each fishery is shown in Table 2.

Lynn Canal

The Lynn Canal herring roe area encompasses regulatory Sections 15-B and 15-C, and that portion of Section 11-A north of Shrine Island.

The Lynn Canal fishery has not been open since 1982. Aerial and vessel surveys conducted in the Lynn Canal fishing area during the spring of 1992 indicated that the population is still below the spawning threshold level. Therefore, this fishery will not open in 1993.

Sitka Sound

The Sitka Sound sac roe fishing area encompasses the waters of Section 13-B north of the latitude of Aspid Cape, excluding the waters of Whale and Necker Bays.

In the spring of 1992, approximately 72.5 miles of beach were recorded as having received herring spawn in the Sitka Sound fishing area. Subsequent spawn deposition surveys provided an estimated spawning population of approximately 97,000,000 lbs. The harvest strategy discussed earlier provides for a 1993 harvest rate of 20.0% of the estimated mature herring stock and a harvest of 9,691 tons.

A test fishery conducted by the department on January 26 and February 7 in Eastern Channel indicates that 83% of the biomass is age 5 herring, 93 grams average weight, with about 60% of the fish expected to be greater than or equal to 20cm in length. Weight projections indicate that 100-110 gram herring can be expected during the time of the fishery, which generally occurs between March 24 and April 16.

Prior to and during the fishing period, herring distribution and roe quality will be monitored. Monitoring methods for 1993 will include aerial surveys, hydroacoustic surveys, and test fishing. The areas open to fishing will depend on the distribution of herring stocks and the need to provide for a fishery that will harvest to good quality herring.

This year's large quota of 9,691 tons will be managed to maximize quality. This will be accomplished by taking the quota during at least three openings with adequate time between openings to process the

catch. Additional benefits of this style of fishing will be to reduce the impact of harvest on any particular segment of the herring spawning population, and to avoid wastage.

Another approach previously used in the Sitka fishery to maximize quality and to slow down the pace of the fishery has been to fish cooperatively by dividing shares of the quota among permit holders. A decision to take this latter approach would have to be made by fishermen. However, the department will encourage resolving this issue early in the development of this year's fishery.

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Table 1. Southeast Alaska gill net sac roe herring fisheries information summary, 1976-1992.

Year	Seymour Canal ¹				Kah Shakes			
	Guideline Harvest Level (Tons)	Catch (Tons)	Date Two Hour Notice Was Effective	Opening Dates	Guideline Harvest Level (Tons)	Catch (Tons)	Date Two Hour Notice Was Effective	Opening Dates
1976	200	195		May 9	300	426	March 23	April 2
1977	500	485	May 4	May 9	800	820	March 29	April 1
1978	500	729	May 2	May 8	680	171	March 26	April 4
1979	250	269	May 3	May 3	585	528	March 28	March 29
1980			Fishery Not Open		1,100	1,140	March 25	March 25
1981	600	615	April 28	April 28	1,550	1,840	March 20	March 20
1982			Fishery Not Open		1,700	2,279	March 20	March 26
1983			Fishery Not Open		2,500	3,250	March 23	March 24
1984	375	518	April 20	April 26	2,100	2,182	March 20	March 29
1985			Fishery Not Open		2,300	2,161	March 28	March 29
1986	300	339	May 5	May 10	1,100	1,536	March 29	March 31
1987	419	302	May 1	May 5, 6	1,200	1,440	March 24	March 26, 27
1988	530	586	April 20	April 26-May 1	953	1,087	March 24	March 25
1989	332	547	April 21	April 28	647	592	March 20	March 20, 21
1990	312	359	April 21	April 28-29	Fishery Not Open			
1991			Fishery Not Open		680	660	March 28	April 8,9,10,11
1992			Fishery Not Open		1,200	1,256	April 1	April 3

¹ Seymour Canal was a purse seine fishing area prior to 1980.

Table 2. Southeast Alaska purse seine sac roe herring fisheries information summary, 1976-1992.

Year	Juneau ¹ -Lynn Canal				Sitka Sound			
	Guideline Harvest Level (Tons)	Catch (Tons)	Date Two Hour Notice Was Effective	Opening Dates	Guideline Harvest Level (Tons)	Catch (Tons)	Date Two Hour Notice Was Effective	Opening Dates
1976	750	432 Seine 124 GillNet		April 26 April 29	780	800	April 10	April 16
1977	875	709 Seine 217 GillNet		April 19 April 20			Fishery Not Open	
1978	500 200	602 Seine 346 GillNet	April 19 April 21	April 20	250	175	April 4	April 5
1979	Fishery Not Open				2,000	2,250	April 7	April 12
1980	600	975	April 13	April 26	4,000	4,385	April 4	April 4 & 5
1981	725	761	April 17	April 23	2,700	3,506	March 23	March 24 & 26
1982	375	551	April 30	April 30	3,000	4,363	March 26	March 30
1983	Fishery Not Open				5,500	5,463	March 23	March 26 & 29
1984	Fishery Not Open				5,000	5,711	March 22	March 26, 27 & 28
1985	Fishery Not Open				7,700	7,475	March 24	March 29 and April 1 & 5
1986	Fishery Not Open				5,029	5,443	March 28	April 2 & 8
1987	Fishery Not Open				3,600	4,216	March 23	March 31
1988	Fishery Not Open				9,200	9,573	March 25	April 4 - 14
1989	Fishery Not Open				11,700	11,831	March 23	March 31 - April 8
1990	Fishery Not Open				4,146	3,804	April 4	April 5 & 6
1991	Fishery Not Open				3,200	1,908	March 29	April 10 - April 13
1992	Fishery Not Open				3,356	5,368	March 30	April 6

¹ The Juneau fishery was both a gillnet and seine area prior to 1980.

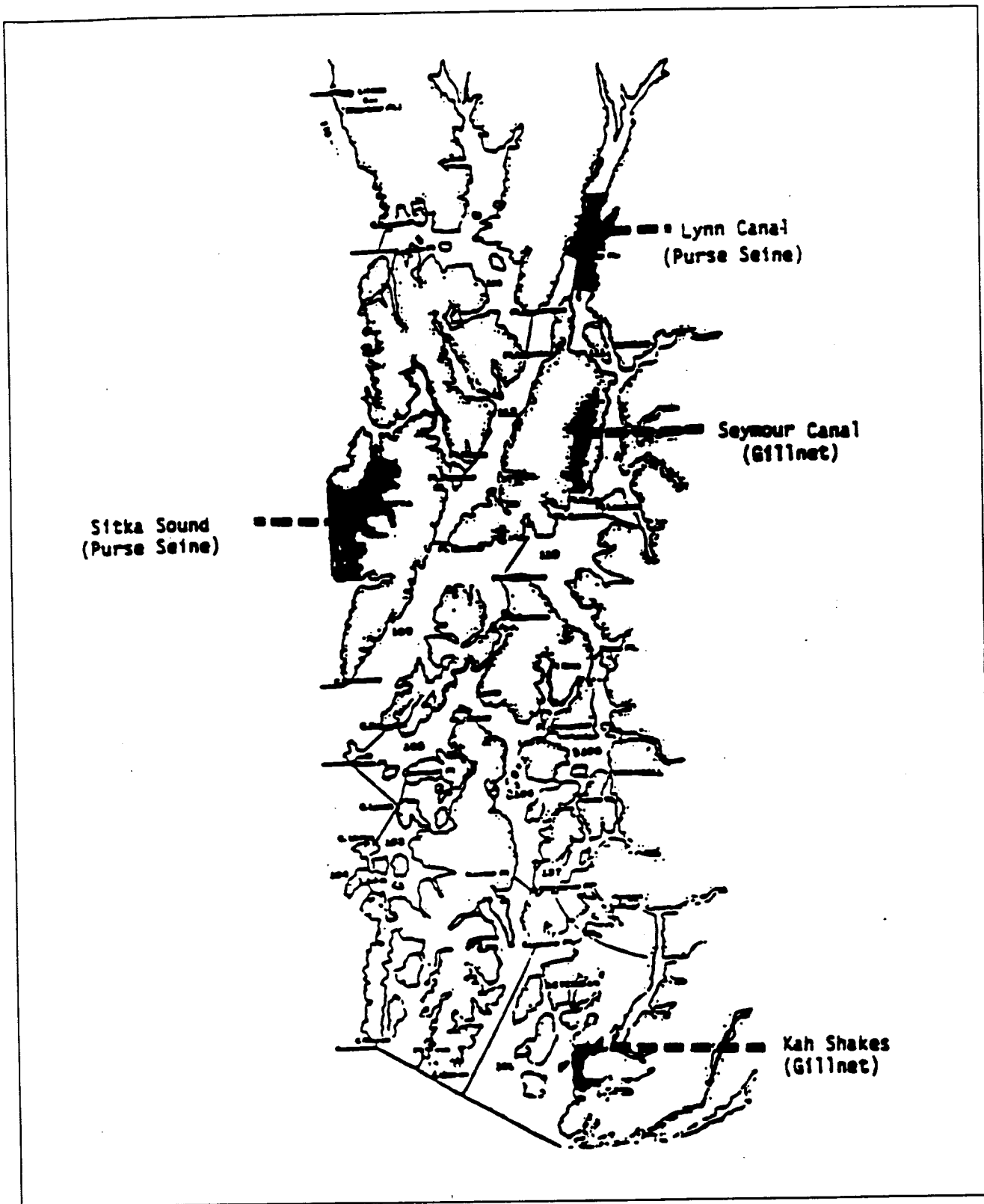


Figure 1. Southeast Alaska sac roe herring areas.

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